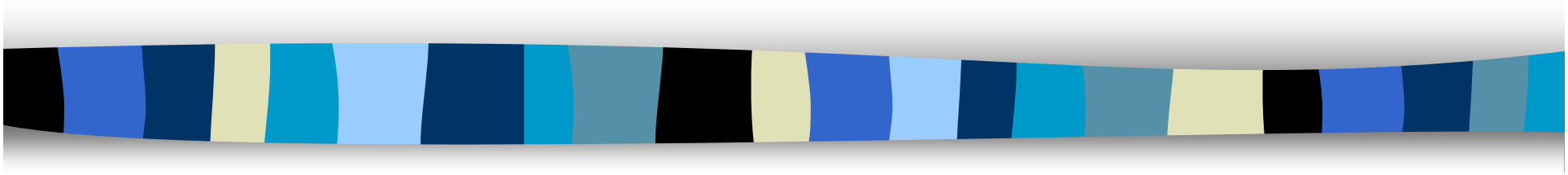
Air Quality Management 101

Utah Division of Air Quality



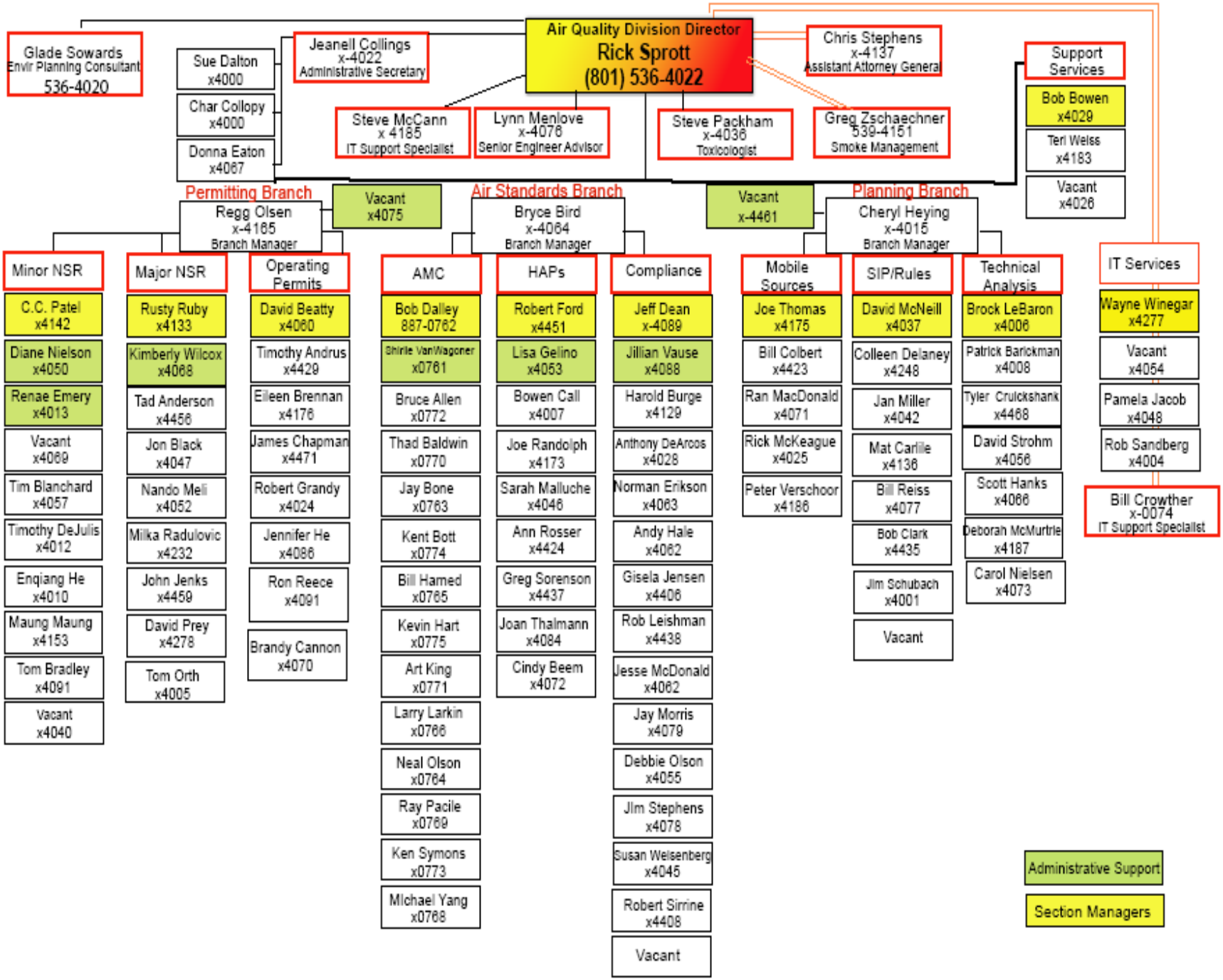
http://www.airquality.utah.gov

Summary

- The air is cleaner today than it was 10 years ago.
- On the other hand, we know that very small quantities of air pollution are more harmful than we knew 10 years ago.
- We don’t know enough about HAPs, especially about interactions among them.

Federal Clean Air Act

- Passed in 1970; last amended in 1990
- Major policies:
  - National Ambient Air Quality Standards (NAAQS) & procedures (plans, permitting, monitoring, etc.)
  - Hazardous Air Pollutants (HAPs)
  - Acid Rain
  - Mobile Sources
  - Stratospheric Ozone Protection
  - Visibility
  - Operating Permits
  - Compliance and Enforcement


Air Quality Division Director
Rick Sprott
(801) 536-4022
Glade Sowards
Envir Planning Consultant
536-4020
Sue Dalton
x4000
Char Collopy
x4000
Donna Eaton
x4067
Jeanell Collings
x-4022
Administrative Secretary
Steve McCann
x 4185
IT Support Specialist
Lynn Menlove
x-4076
Senior Engineer Advisor
Steve Packham
x-4036
Toxicologist
Chris Stephens
x-4137
Assistant Attorney General
Greg Zschaechner
539-4151
Smoke Management
Support Services
Bob Bowen
x4029
Teri Weiss
x4183
Vacant
x4026
Permitting Branch
Regg Olsen
x-4185
Branch Manager
Vacant
x4075
Air Standards Branch
Bryce Bird
x-4064
Branch Manager
Vacant
x-4461
Planning Branch
Cheryl Heying
x-4015
Branch Manager
Minor NSR
C.C. Patel
x4142
Diane Nielson
x4050
Renae Emery
x4013
Vacant
x4069
Tim Blanchard
x4057
Timothy DeJulis
x4012
Enqiang He
x4010
Maung Maung
x4153
Tom Bradley
x4091
Vacant
x4040
Major NSR
Rusty Ruby
x4133
Kimberly Wilcox
x4068
Tad Anderson
x4456
Jon Black
x4047
Nando Meli
x4052
Milka Radulovic
x4232
John Jenks
x4459
David Prey
x4278
Tom Orth
x4005
Operating Permits
David Beatty
x4060
Timothy Andrus
x4429
Eileen Brennan
x4176
James Chapman
x4471
Robert Grandy
x4024
Jennifer He
x4086
Ron Reece
x4091
Brandy Cannon
x4070
AMC
Bob Dalley
887-0762
Shirle VanWagoner
x0761
Bruce Allen
x0772
Thad Baldwin
x0770
Jay Bone
x0763
Kent Bott
x0774
Bill Hamed
x0765
Kevin Hart
x0775
Art King
x0771
Larry Larkin
x0766
Neal Olson
x0764
Ray Pacile
x0769
Ken Symons
x0773
Michael Yang
x0768
HAPs
Robert Ford
x4451
Lisa Gelino
x4053
Bowen Call
x4007
Joe Randolph
x4173
Sarah Malluche
x4046
Ann Rosser
x4424
Greg Sorenson
x4437
Joan Thalmann
x4084
Cindy Beem
x4072
Compliance
Jeff Dean
x-4089
Jillian Vause
x4088
Harold Burge
x4129
Anthony DeArcos
x4028
Norman Erikson
x4063
Andy Hale
x4062
Gisela Jensen
x4406
Rob Leishman
x4438
Jesse McDonald
x4062
Jay Morris
x4079
Debbie Olson
x4055
Jim Stephens
x4078
Susan Welsenberg
x4045
Robert Sirrine
x4408
Vacant
Mobile Sources
Joe Thomas
x4175
Bill Colbert
x4423
Ran MacDonald
x4071
Rick McKeague
x4025
Peter Verschoor
x4186
SIP/Rules
David McNeill
x4037
Colleen Delaney
x4248
Jan Miller
x4042
Mat Carlile
x4136
Bill Reiss
x4077
Bob Clark
x4435
Jim Schubach
x4001
Vacant
Technical Analysis
Brock LeBaron
x4006
Patrick Barickman
x4008
Tyler Cruickshank
x4468
David Strohm
x4056
Scott Hanks
x4066
Deborah McMurtrie
x4187
Carol Nielsen
x4073
IT Services
Wayne Winegar
x4277
Vacant
x4054
Pamela Jacob
x4048
Rob Sandberg
x4004
Bill Crowther
x-0074
IT Support Specialist
Administrative Support
Section Managers

Air Quality Standards

- EPA establishes health standards based on epidemiological studies and laboratory tests
- Standards are set to protect the most sensitive people
  - Elderly, children, people with respiratory disease
- Cost is not considered in setting the standards—it is considered in implementing the standards.

Air Quality Monitoring Network

- Monitors are located throughout Utah
- Concentrated along Wasatch Front

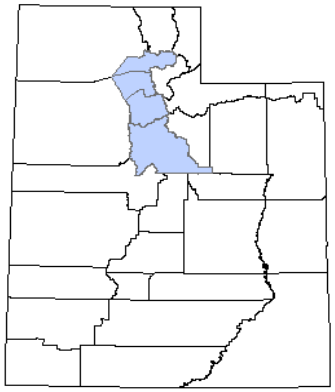
Pollutants of National Concern

- **Particulate Matter (PM_{10} and $PM_{2.5}$)** – Spread out over wide area
  - Problem / Health Effect: Gets caught deep in lungs – Asthma. Recent evidence it affects the heartbeat.
  - Sources: Vehicles, Woodburning, Tilling (summer), Sand/Gravel Operations, Combustion
- **Ozone (O_3)** – Spread out over wide area
  - Problem / Health Effect: Long term lung damage (cracking, etc)
  - Sources: Vehicles, Forests, Combustion Processes
- **Carbon Monoxide (CO)** – Very Localized
  - Problem / Health Effect: Short term suffocation
  - Sources: **VEHICLES,** Woodburning, Space Heating

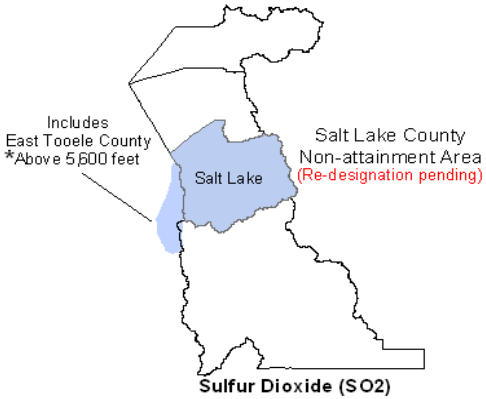
Air Quality Standards

- What standards are we close to?
  - Ozone: 80 ppb – (8-Hr)
  - PM2.5:
    - Currently 15 µg/m^3 (annual) & 65 µg/m^3 (24-hr)
    - Proposed 15 µg/m^3 (annual) & 35 µg/m^3 (24-hr)
- Where are we close?
  - Ozone: Wasatch Front
  - PM2.5: Cache Valley

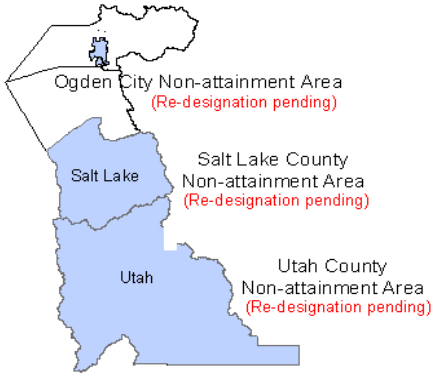
State of Utah
National Ambient Air Quality Standards
Areas of Non-attainment and Maintenance
(Effective January 2006)



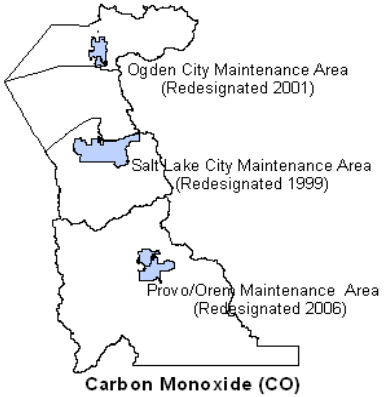
Wasatch Front Counties



Sulfur Dioxide (SO2)

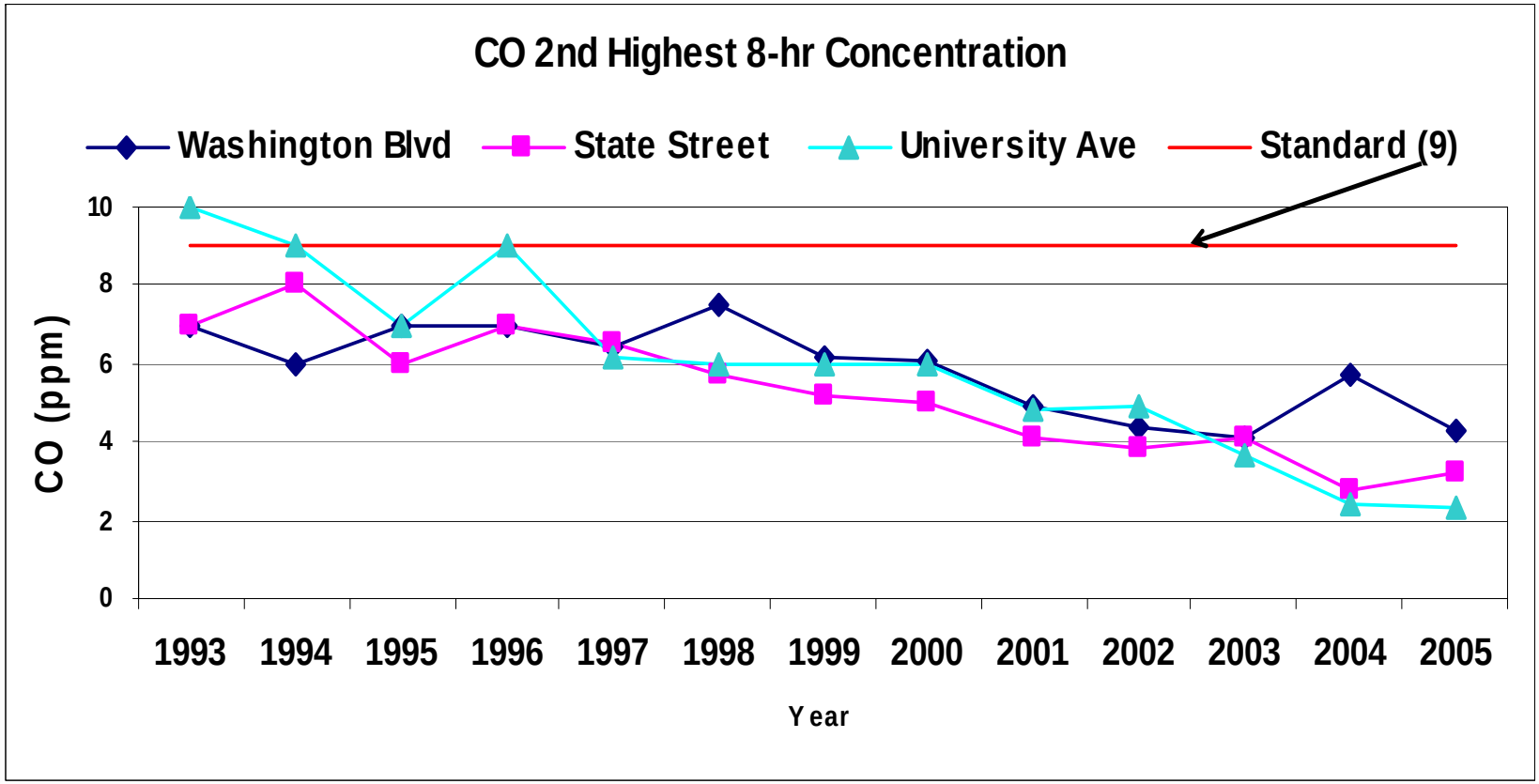


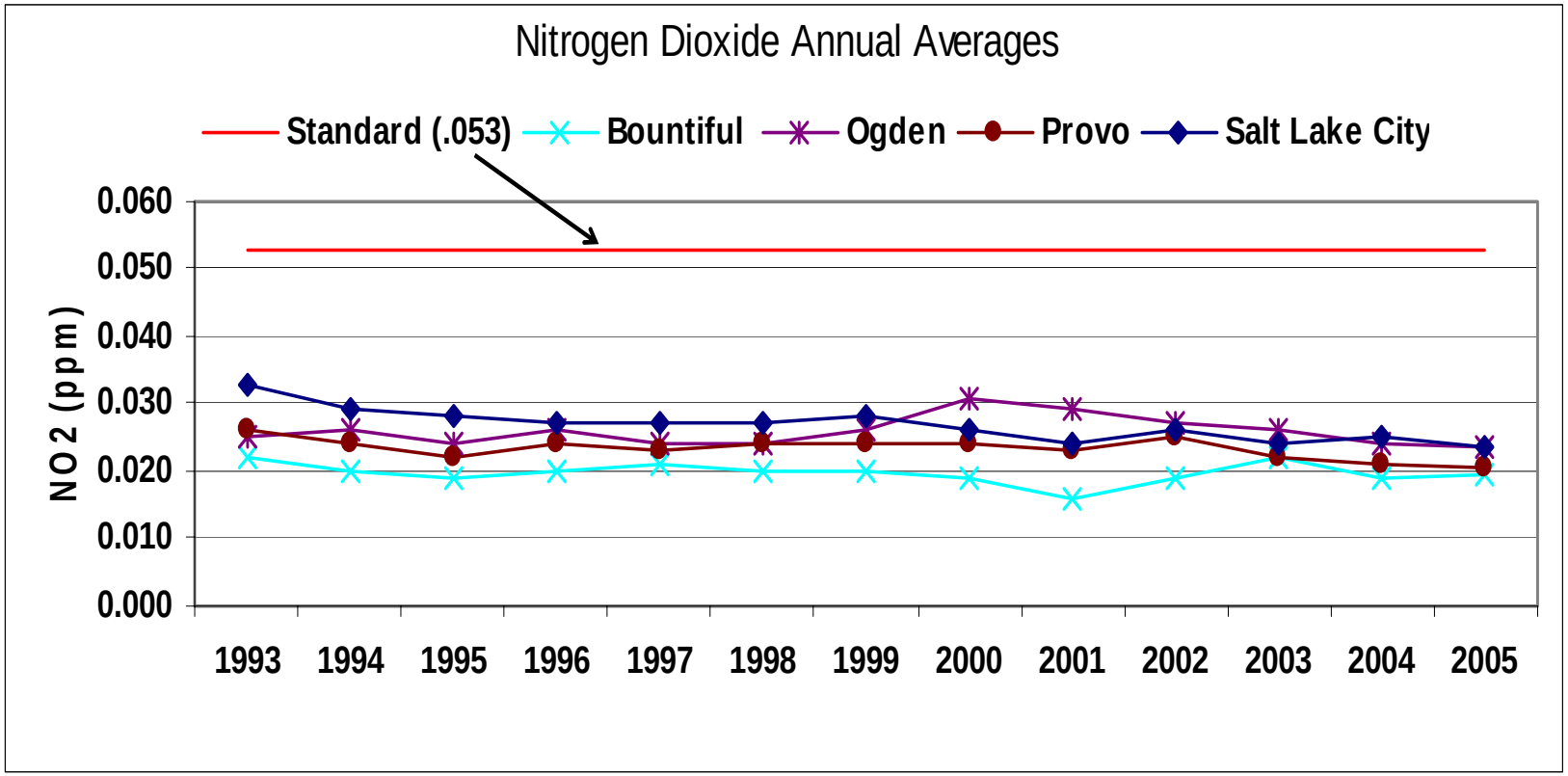
Particulate (PM10)

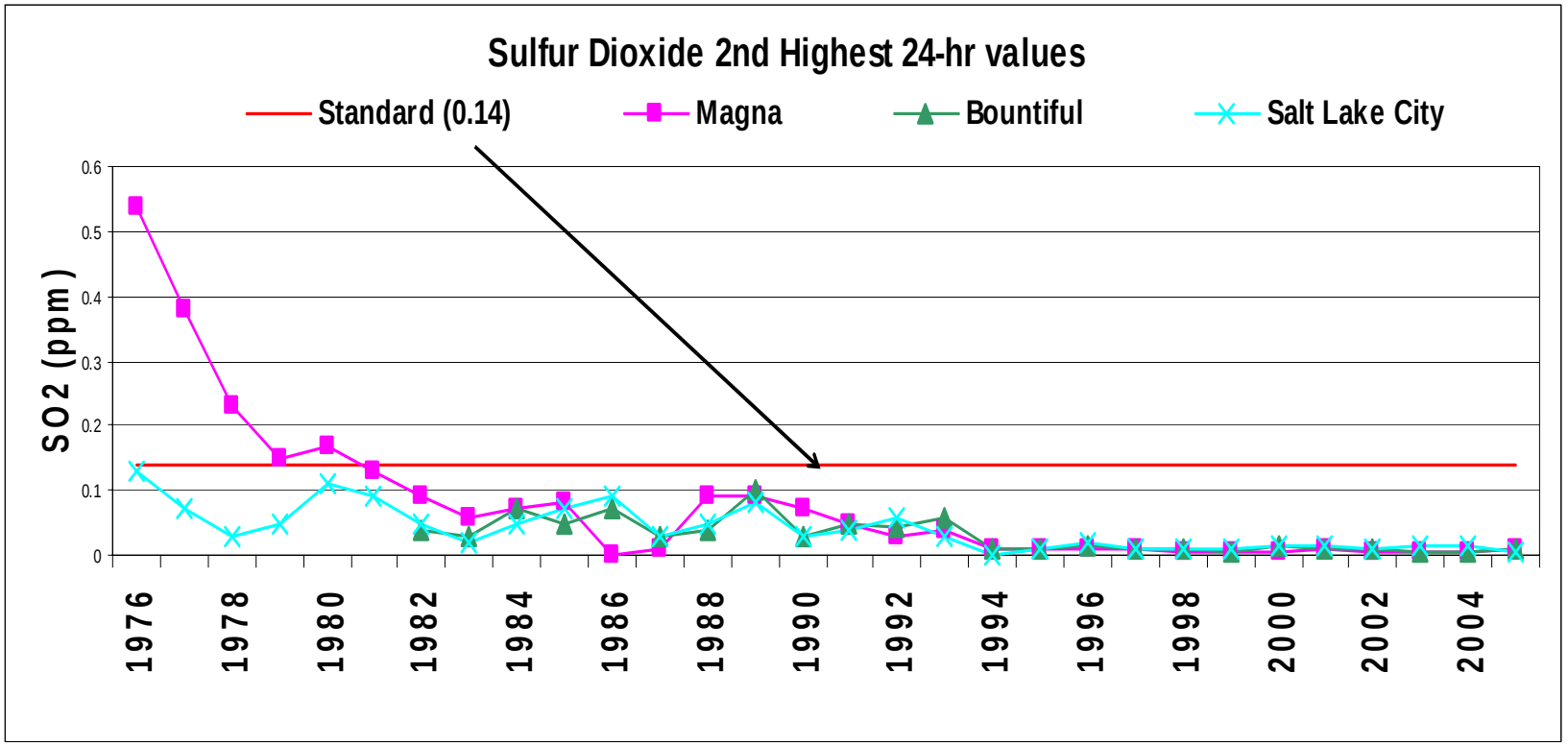


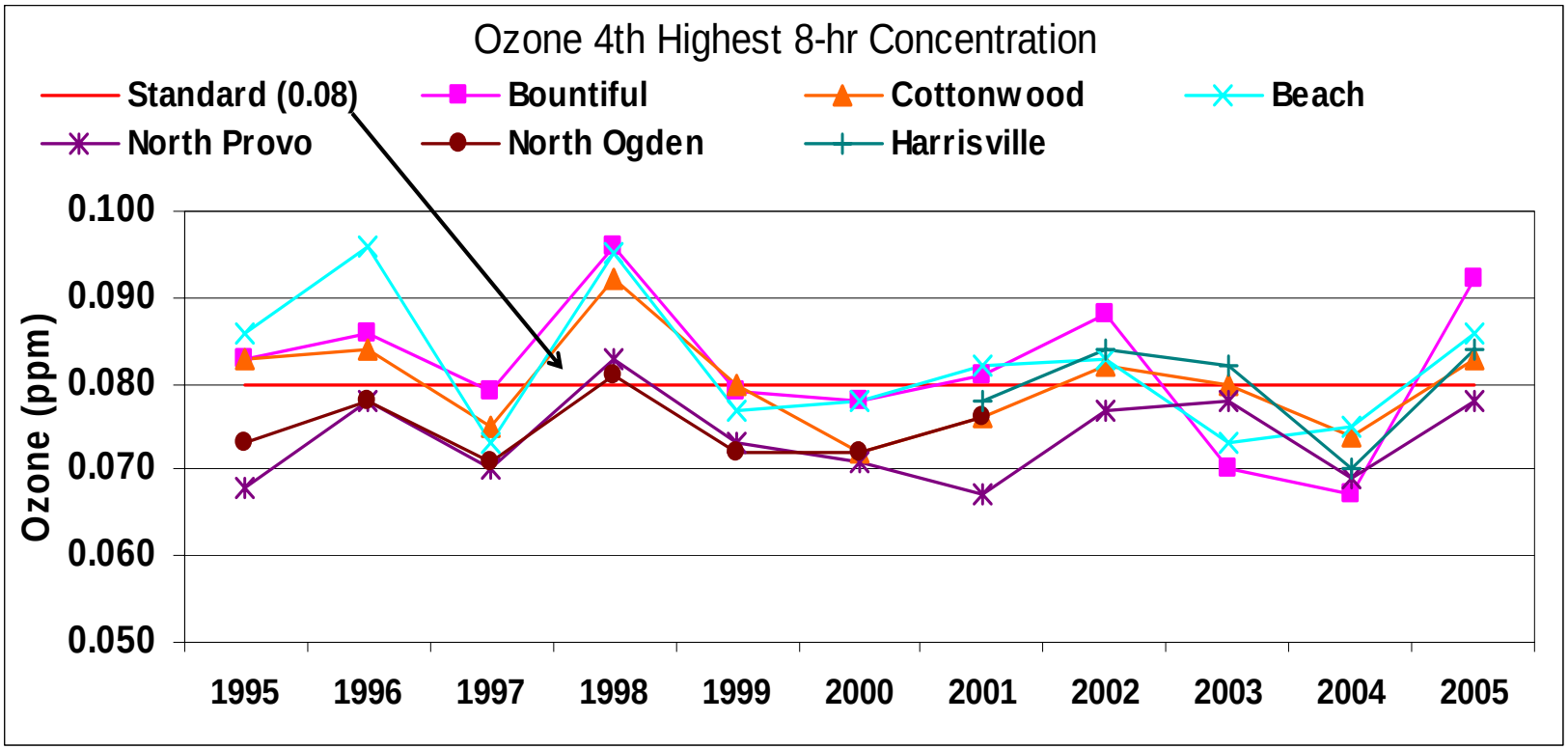
Carbon Monoxide (CO)

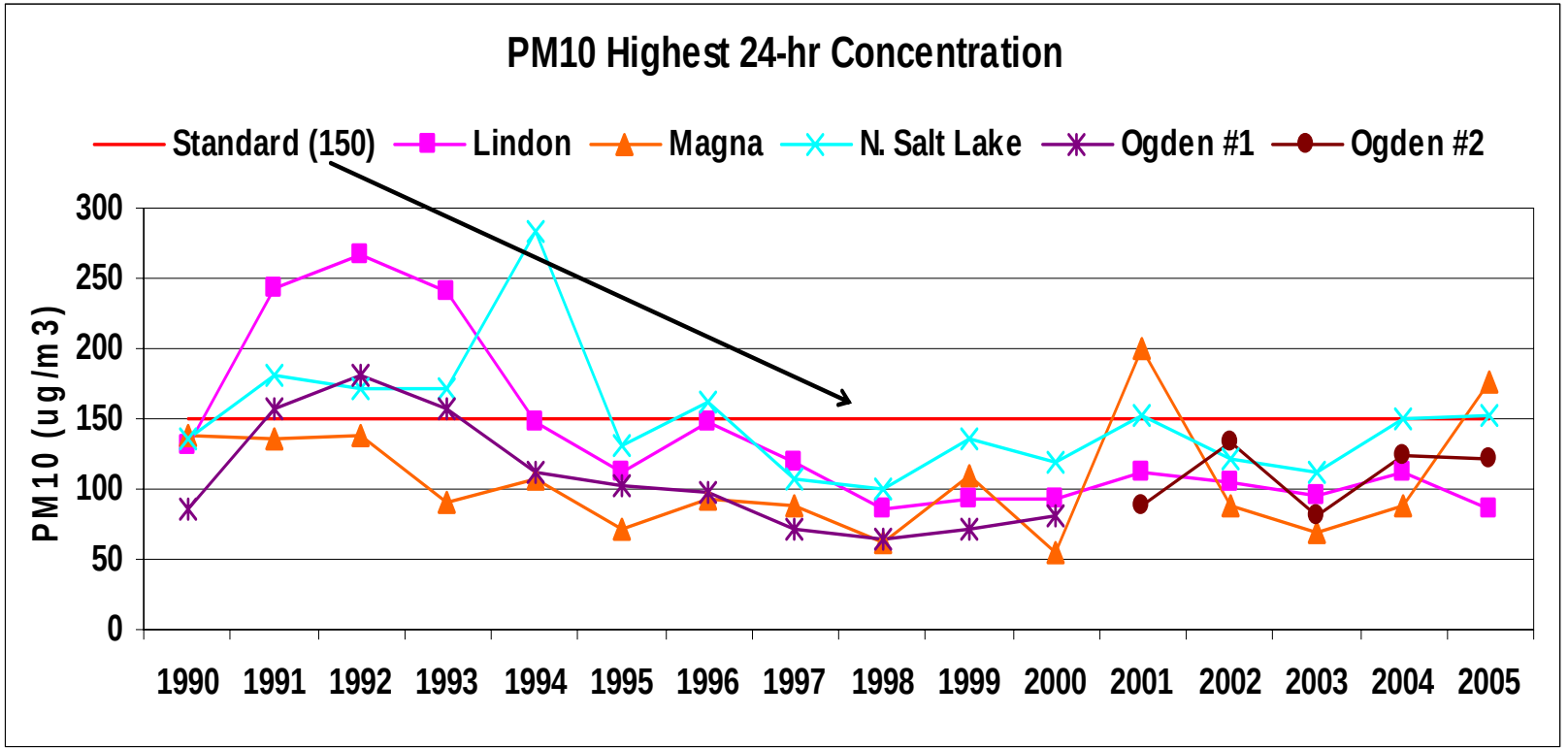
Note: The entire state is in attainment for $PM_{2.5}$ and 8-hour Ozone

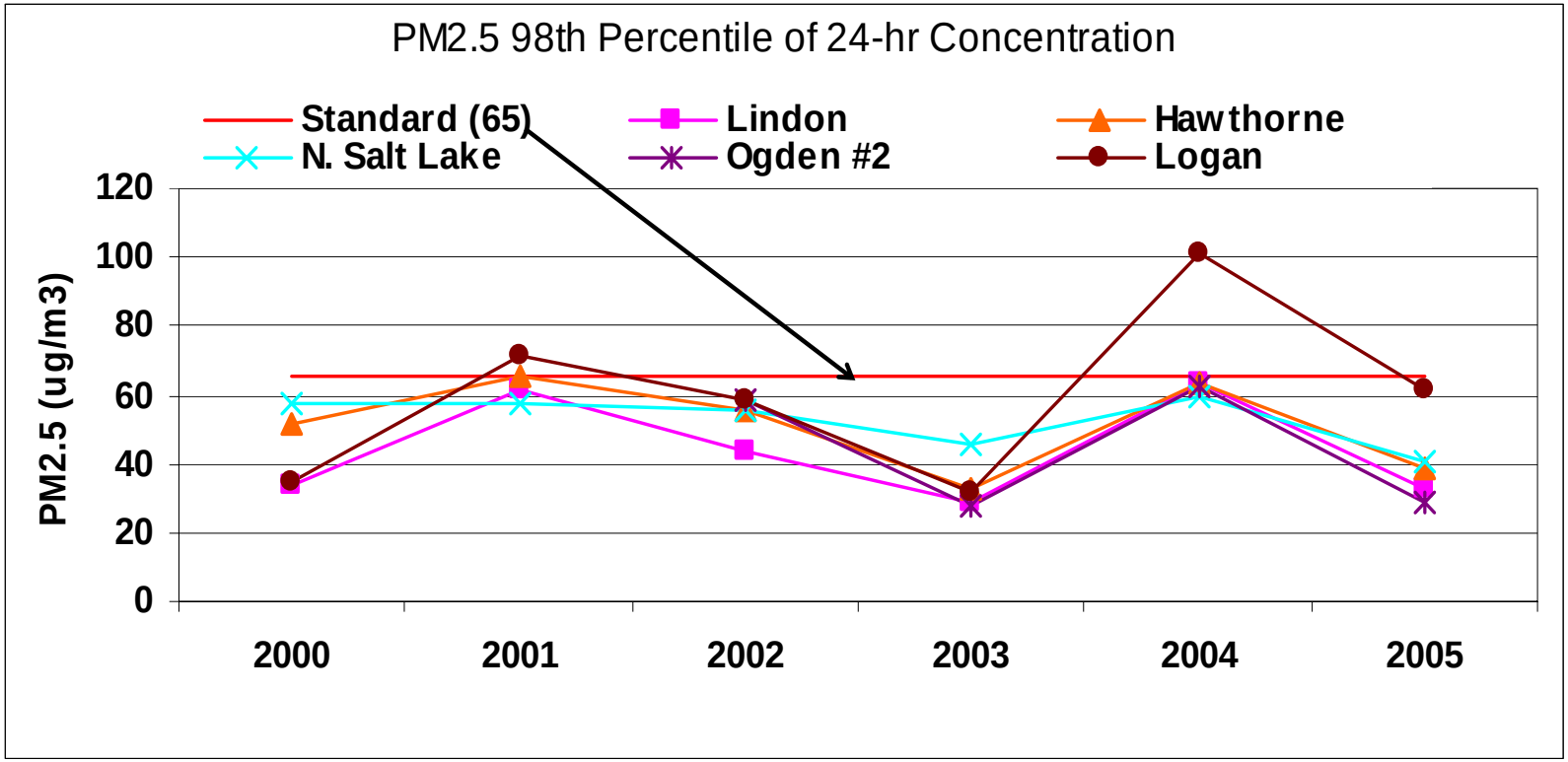

CO 2nd Highest 8-hr Concentration
Washington Blvd
State Street
University Ave
Standard (9)
CO (ppm)
10
8
6
4
2
0
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
Year


Nitrogen Dioxide Annual Averages
Standard (.053)
Bountiful
Ogden
Provo
Salt Lake City
NO2 (ppm)
0.060
0.050
0.040
0.030
0.020
0.010
0.000
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005


Sulfur Dioxide 2nd Highest 24-hr values
Standard (0.14)
Magna
Bountiful
Salt Lake City
SO2 (ppm)
0.6
0.5
0.4
0.3
0.2
0.1
0
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004


Ozone 4th Highest 8-hr Concentration
Standard (0.08)
Bountiful
Cottonwood
Beach
North Provo
North Ogden
Harrisville
Ozone (ppm)
0.100
0.090
0.080
0.070
0.060
0.050
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005


PM10 Highest 24-hr Concentration
Standard (150)
Lindon
Magna
N. Salt Lake
Ogden #1
Ogden #2
PM10 (ug/m3)
300
250
200
150
100
50
0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005


PM2.5 98th Percentile of 24-hr Concentration
Standard (65)
Lindon
Hawthorne
N. Salt Lake
Ogden #2
Logan
PM2.5 (ug/m3)
120
100
80
60
40
20
0
2000
2001
2002
2003
2004
2005

What is a State Implementation Plan?

- A SIP is a federally-enforceable document that outlines the broad air program in a state
- The SIP is also a planning tool
  - to reduce pollution in areas that do not meet the health standards, i.e.:
    - PM10, PM 2.5
    - Ozone
    - Carbon Monoxide
    - Sulfur Dioxide
  - To keep air quality from degrading in clean areas

Issues/Projects in Planning

- Cache County PM
- Mercury
- Oil and Gas
- Regional Haze
- PSD/NSR rules
- Federal Approval of ALL SIPS (SO2, PM10, Inventory Rule)

Air Permits

- Two types of permits in Utah
  - Approval Orders (AO) – NSR or construction permits (Title I of CAA)
    - PSD
    - Major or Non-Attainment NSR
    - Minor NSR
  - Operating Permits (Title V of CAA)

Approval Orders

- Began in 1969
- Utah Admin Code R307-401
  - New
  - Modified
  - Relocated
- ". . . will or might reasonably be expected to increase . . . or change the effect of . . . air contaminants discharged . . . ."
- Small Source Exemptions

What an AO Is Not

- A mechanism to control nuisances such as
  - Odors
  - Noise
  - Others
- A zoning mechanism

Annual Program Effort

- 313 Permitting documents in FY05
- 129 Approval Orders issued
- 184 Other misc documents
  - Sales tax exemptions
  - Name changes
  - Emissions banking actions
  - etc

Funding NSR Program

- Total Program Cost is ~ $1.2M
- Charge permittees for direct permit effort ($70/hr)
  - Accounts for $500K to $900K per year
- 105 Grant makes up difference

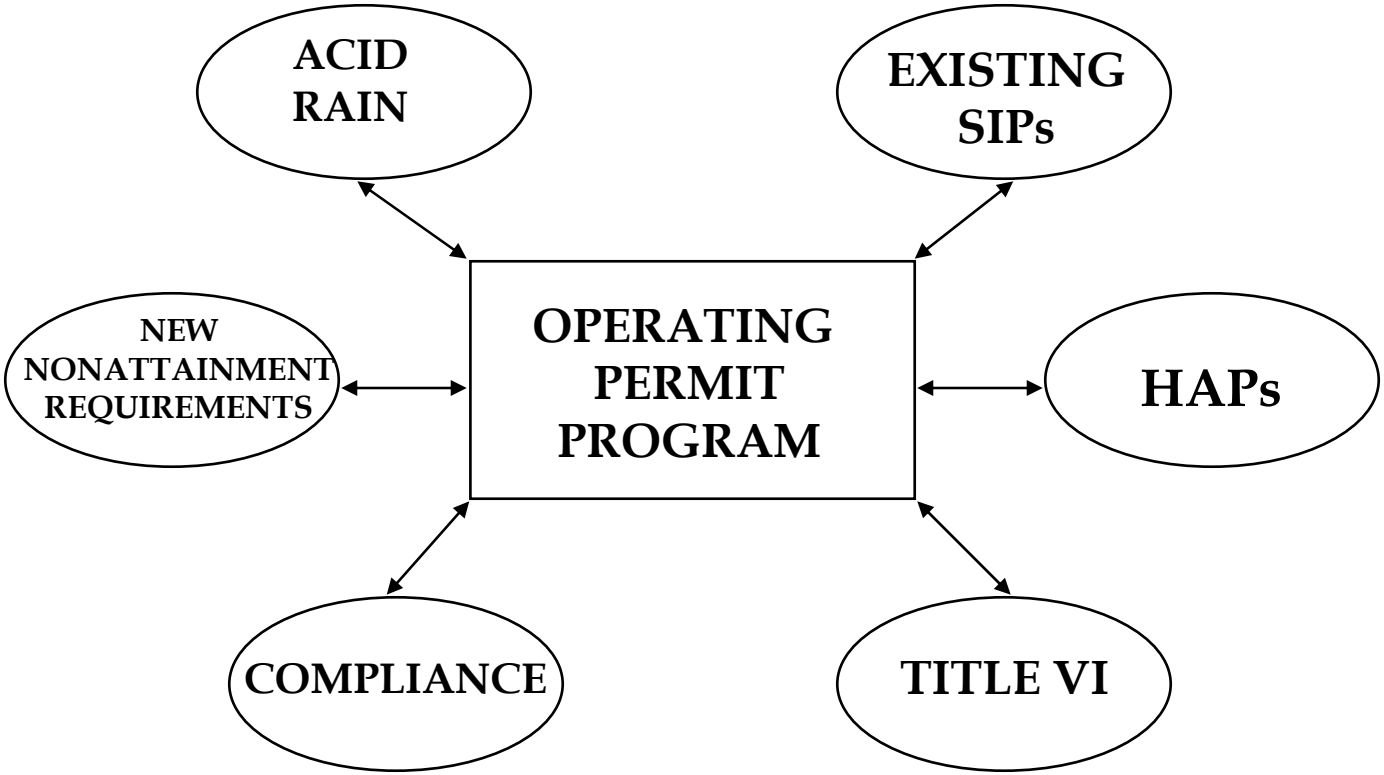
Title V Operating Permit Program

- Consolidate requirements
- Greater certainty for sources
- An enforcement tool
- Five year term
- Public/EPA involvement

Title V Operating Permit Program (Cont'd)

- No new control requirements
- Monitoring, Recordkeeping, and Reporting
- Compliance certification

The Single Enforcement Document

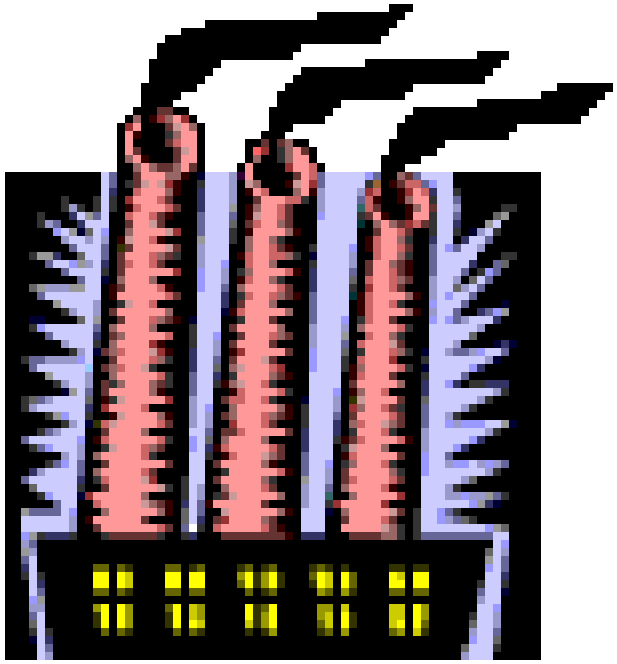


OPS Fee

- CAA mandates program be self supporting
- Program cost is approx $3.4M per year with 34 FTEs (in most division sections)
- Simple method (cost ÷ tons of emissions)
  - Emissions decrease but sources don't – workload remains same but fee increases
- Fee proposed by AQB and then goes to Legislature each year
- Proposed fee for next year is $43.03/ton

CURRENT ISSUES

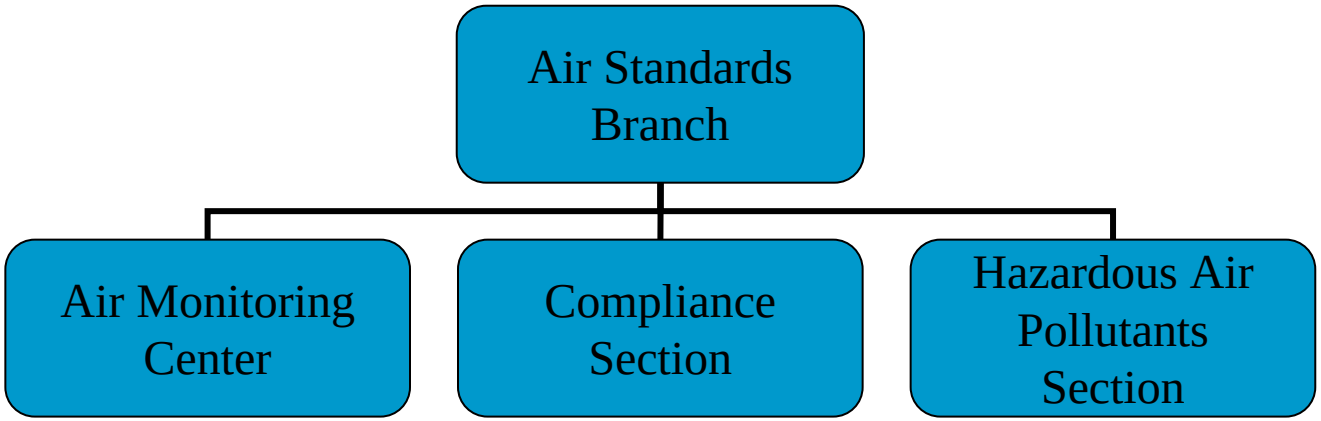
- NSR Reform
  - PALs
  - Clean Unit Exemption (vacated by court)
  - Pollution Control Project (vacated by court)
  - Emission Calculations
  - Definition of Routine Maintenance & Repair
- Oil & Gas Initiative
- Definition of Modification



CURRENT ISSUES (cont'd)

- Power Plant Appeals
  - IPP
  - Sevier Power
- Sand & Gravel Pits (incl Asphalt Plants)

Air Standards Branch Organization



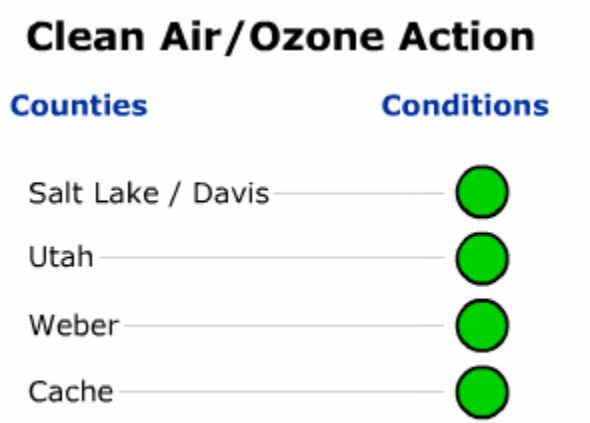
Air Monitoring Center

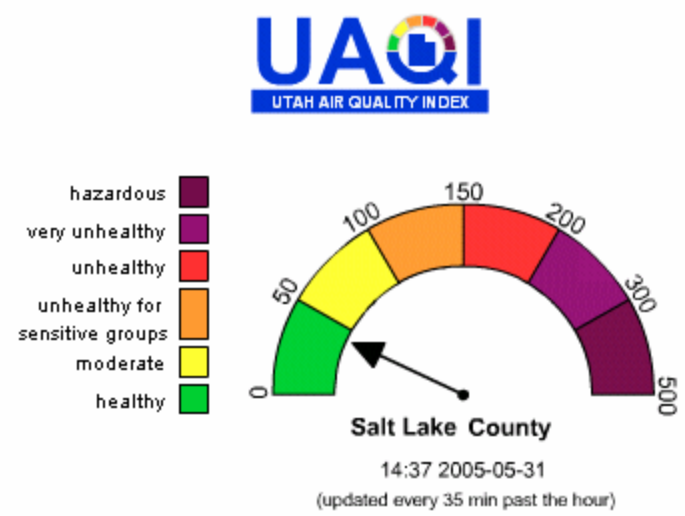
- Monitors are located throughout Utah
- Concentrated along Wasatch Front


Utah Division of Air Quality
Monitoring Network
Northern Utah -
St. George
Amalga
Logan
Hyrum
Cache
Box Elder
Brigham City
Harrisville
Weber
Washington Blvd
Ogden
Washington Terrace
Syracuse
Morgan
Antelope Isle.
Davis
Badger Isle.
Bountiful
N. Salt Lake
State St.
Magna
Hawthorne
Summit
West Valley
Cottonwood
West Jordan
Salt Lake
Tooele
Herriman
Wasatch
Highland
Lindon
Utah
N. Provo
University Ave.
Spanish Fork

Air Monitoring Center

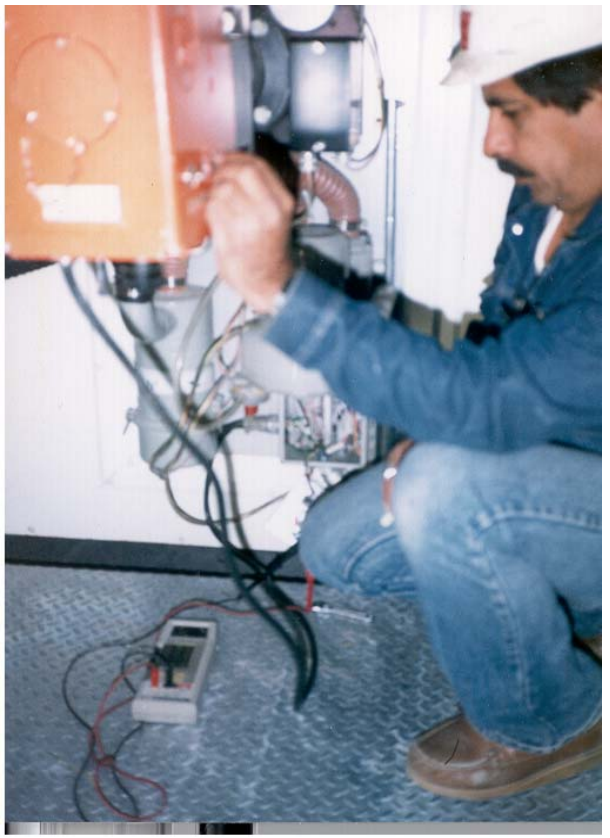
- Air Monitoring Network
- Design and Maintenance
- Meteorological Monitoring
- Air Pollution Trends
- Public Information
- Special Studies





Compliance Section

- Inspections
- Audits
- Complaints



DAQ ANNUAL INSPECTIONS

- DAQ Regulates over 2000 sources.
- Inspections are conducted to determine compliance with all applicable air requirements.
- Regulations and policies are intended to:
  - Achieve voluntary compliance
  - Achieve continuous compliance

DAQ AUDITS, STACK TESTS, AND CEMS

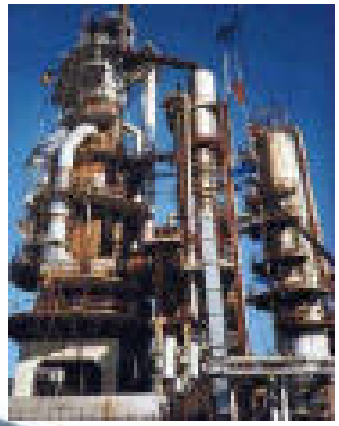
- Audits ensure compliance with emission limits.
- Audits ensure the accuracy of the emission inventory.
- 100 – 150 Audits are performed annually.

COMPLAINTS RECEIVED

- 400 – 500 complaints are received annually.
- Many complaints involve minor nuisances.

Hazardous Air Pollutants Section

- **National Emission Standards for**
- **Hazardous Air Pollutants (NESHAP)**
- **Maximum Achievable Control Technology (MACT)**



HAPS

- **Lead-Based Paint** - Toxic Substances Control Act (TSCA) and state rules
- Accreditation of training programs
- Certification of individuals and firms
- Work practices for lead-based paint activities
- Outreach activities

HAPS

- **Asbestos in Schools** - Asbestos Hazard Emergency Response Act (AHERA)
- Approval of training providers
- Certification of individuals and companies
- Review of asbestos Management Plans
- Inspections of school buildings (20 per year)
- Inspections of asbestos abatement in schools (20 per year)

HAPS

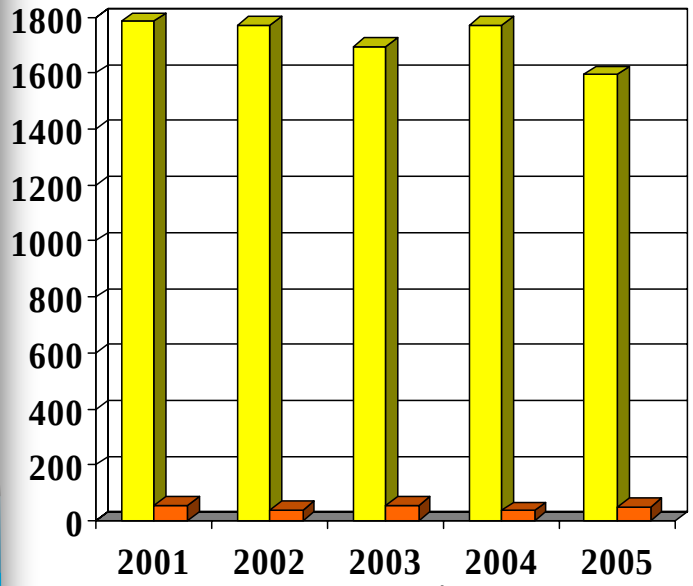
Asbestos NESHAP

- Review of asbestos project notifications (400 per year)
- Review of demolition notifications for structures (400 per year)

Asbestos State Rules - R307-801

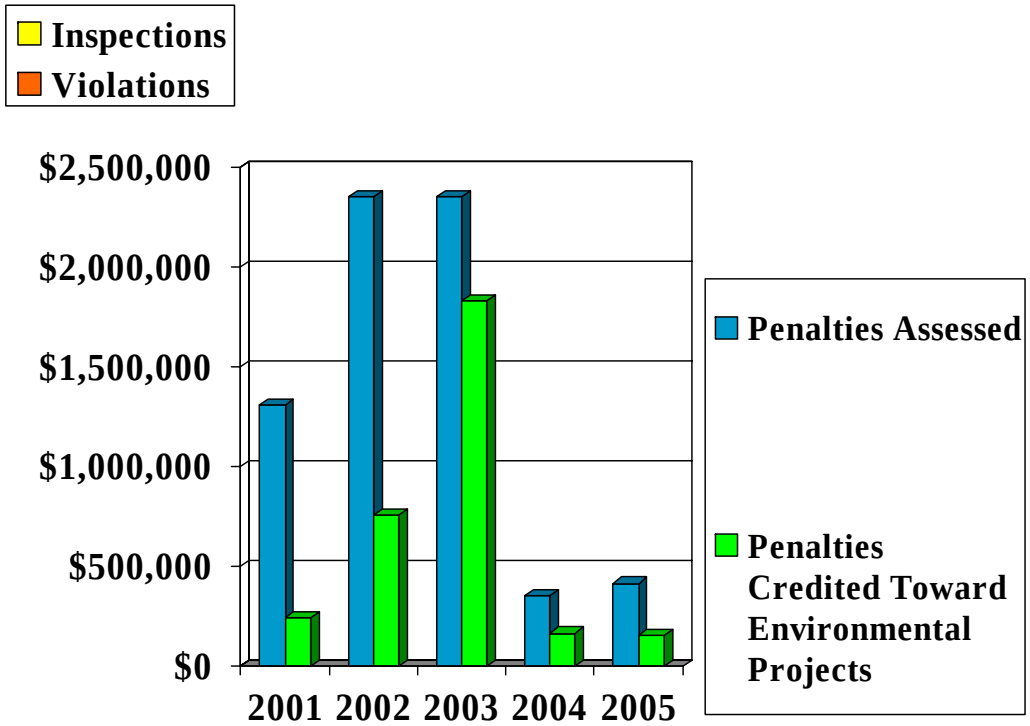
- Certification of individuals (200 per year) and companies (30 per year)
- Review of alternate work practices (10 per year)
- Inspection of asbestos abatement projects and demolition of structures (130 per year)
- Asbestos outreach activities

Enforcement



Inspections

98% Compliance Rate



Penalties

Air Standards Branch Issues

- New Standards
  - Proposed NAAQS
  - MACT's
  - Lead-based Paint Renovation Rule
- Animal Feeding Operation Air Quality Strategy
- Growth/Encroachment
- Air Toxics
- Funding/Budgets
  - Personnel
  - Equipment
  - Vehicles

Choose Clean Air Website

- www.cleanair.utah.gov